

REMARKS

I. Status Summary

Claims 1-20 are pending in the present application. Claims 1, 12, 13, and 15 have been amended. Claims 11 and 20 have been canceled. Therefore, upon entry of this Amendment, Claims 1-10 and 12-19 will be pending. No new matter has been introduced by the present amendment. Reconsideration of the application as amended and based on the arguments set forth hereinbelow is respectfully requested.

The amendment to Claim 1 is supported throughout the present application. For example, the new features of amended Claim 1 are recited in original Claim 11 and disclosed at page 8, line 31, and Figure 1 of the present application.

The amendment to Claim 15 is supported throughout the present application. For example, the new features of amended Claim 15 are recited in original Claim 20 and page 8, line 31, and Figure 1 of the present application.

II. Claim Rejections Under 35 U.S.C. § 112

Claims 1-20 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The Examiner contended that the claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventors, at the time the application was filed, had possession of the claimed invention. (Official Action, page 2.) The Examiner stated that it is unclear what is meant by the feature “the structure whereby the solder layer assumes the structure of the interconnect level”. (Official Action, page 2.) Further, the Examiner stated that the solder layer depicted in the drawings and described in the specification fails to have a structure like the

interconnect level. (Official Action, page 2.) The Examiner also stated that the solder layer is rounded and appears to have a greater thickness than the interconnect base levels. (Official Action, page 2.) The Examiner suggested clarifying what is meant by the phrase “assuming the structure”. (Official Action, page 2.)

Independent Claims 1 and 15 recite the feature “the solder layer assumes the structure of the interconnect level” and the feature “the solder layer assuming the structure of the interconnect level”, respectively. Claims 1 and 15 have been amended to provide additional description of the solder layer, in particular, the claims recite that the solder layer assumes the structure of the interconnect level, so that the vertical extent of the solder layer corresponds to an interconnect structure of the interconnect level. Support for this amendment is provided, for example, at page 8, line 31, and Figure 1 of the present application. Applicants respectfully submit that the additional description of the solder layer clarifies the relationship between the solder layer and the interconnect level. For these reasons, it is respectfully submitted that the rejection of Claims 1 and 15 under 35 U.S.C. § 112, first paragraph, should be withdrawn.

In addition, Claims 11 and 20 have been canceled. Therefore, the rejection of these Claims 11 and 20 is now moot. Further, Claims 2-10 and 12-19 depend upon Claims 1 and 15. Therefore, it is respectfully submitted that the rejection of Claims 2-10, 12-14, and 16-19 under 35 U.S.C. § 112, first paragraph, should be withdrawn.

III. Claim Rejection Under 35 U.S.C. § 102

Claims 1-10 and 15-18 stand rejected under 35 U.S.C. § 102(a) as being anticipated by U.S. Patent No. 6,639,314 to Boettcher et al. (hereinafter, “Boettcher”). In addition, Claims 1, 8, 10, and 14 stand rejected under 35 U.S.C. § 102(a) as being

anticipated by U.S. Patent No. 6,569,752 to Homma et al. (hereinafter, "Homma"). These rejections are respectfully traversed.

The Examiner indicated that Claims 11, 12, 13, and 20 are objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent form including all of the features of the base claim and any intervening claims. (Official Action, page 3.) Claim 1 has been amended to include the features of dependent Claim 11. Therefore, applicants submit that Claim 1 is now in condition for allowance and the rejection of Claim 1 under 35 U.S.C. § 102(a) should now be withdrawn.

Claim 11 has been canceled. Claims 2-10 and 12-14 depend from Claim 1. Therefore, applicants respectfully submit that the rejection of Claims 2-10 and 12-14 should now also be withdrawn.

Claim 15 has been amended to include the features of dependent Claim 20. Therefore, applicants submit that Claim 15 is now in condition for allowance and the rejection of Claim 15 under 35 U.S.C. § 102(a) should now be withdrawn.

Claim 20 has been canceled. Claims 16-19 depend from Claim 15. Therefore, applicants respectfully submit that the rejection of Claims 16-19 should now be withdrawn.

Finally, although the pending claims are contended to be allowable for the reasons set forth above, applicants further submit that neither Boettcher, Homma, nor any other cited reference teaches applying a non-conductive plastic after application of the structured solder layer in such a way that the tips of the solder balls for the vertical bonding protrude from the plastic, other solder structures being covered over. Further,

the references do not teach that the structured solder layer has a solder layer height corresponding to half the structure width of the structured interconnect level.

IV. Allowable Subject Matter

As previously stated, the Examiner indicated that Claims 11, 12, 13, and 20 are objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent form including all of the features of the base claim and any intervening claims. (Official Action, page 3.) Independent Claims 1 and 15 have been amended to include the features of dependent Claims 11 and 20, respectively. Therefore, applicants respectfully submit that Claims 1 and 15 are now in condition for allowance and should now be formally allowed.

Further, the other pending claims of the present application depend from one of Claims 1 and 15. Therefore, applicants respectfully submit that all of now pending Claims 2-10, 12-14, and 16-19 are now in condition for allowance and should be formally allowed.

CONCLUSION

In light of the above amendments and remarks, it is respectfully submitted that the present application is now in proper condition for allowance, and an early notice to such effect is earnestly solicited.

If any small matter should remain outstanding after the Patent Examiner has had an opportunity to review the above Remarks, the Patent Examiner is respectfully requested to telephone the undersigned patent attorney in order to resolve these matters and avoid the issuance of another Official Action.

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DEPOSIT ACCOUNT

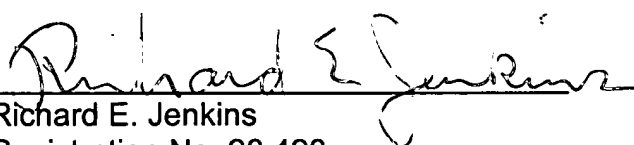
The Commissioner is hereby authorized to charge any fees associated with the filing of this correspondence to Deposit Account No. 50-0426.

Respectfully submitted,

JENKINS, WILSON & TAYLOR, P.A.

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